

WHAT IS CLAIMED IS:

1. A multi-layered armor for protecting a target against a projectile having a projectile velocity directed at the target, comprising:
    - 5 an outer accelerating layer;
    - a plug layer adjacent the accelerating layer, the plug layer having an array of plugs; and
    - an energy absorbing layer adjacent to the plug layer;
  - 10 wherein the accelerating layer is operable to initially receive the impact of the projectile, and to accelerate at least one plug of the array of plugs such that the plug thereby accelerated is in motion before the projectile strikes the plug;
  - 15 wherein the plugs are made from a material different from the accelerating layer and after any plug is impacted by the projectile, that plug is operable to obtain the velocity of the projectile before the projectile perforates the plug;
  - 20 wherein a projectile-plug combination is formed before the projectile perforates the plug, such that the projectile-plug combination increases the presented area of impact to an area greater than that of the projectile when the projectile-plug combination reaches the energy
  - 25 absorbing layer.
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2. The armor of Claim 1, wherein the plug layer includes an opening having a surface area, wherein the plug has a surface area, and wherein the surface area of
  - 30 the plug is substantially the same as the surface area of the opening.

3. The armor of Claim 1, wherein the projectile  
has a cross-sectional area, and wherein the plug has a  
cross-sectional area which is greater than the projectile  
5 cross-sectional area.

4. The armor of Claim 1, where the accelerating  
layer and the plug layer are adjacent but spaced apart by  
an air gap.

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5. The armor of Claim 1, wherein at least one of  
the layers is planar.

6. The armor of Claim 1, wherein at least one of  
15 the layers is non-planar.

7. The armor of Claim 1, wherein at least one of  
the layers conforms to a surface of the target.

8. The armor of Claim 1, wherein at least one layer  
20 is made from a flexible material.

9. The armor of Claim 1, wherein at least one layer  
is made from a rigid material.

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10. The armor of Claim 1, wherein the layers are  
fabricated in sheet form with all layers planar to each  
other.

11. The armor of Claim 1, wherein the plugs are  
30 made from a metallic material.

12. The armor of Claim 1, wherein the plugs are made from a composite material.

5        13. The armor of Claim 1, wherein the plug layer is fabricated as a matrix of plug openings with a plug attached in each opening.

10       14. The armor of Claim 1, wherein the plug layer is fabricated as a matrix of plug openings and the ratio of the plug area to the cross sectional area of the projectile is substantially 4.0 to 7.0.

15       15. The armor of Claim 1, wherein the plugs are attached to the back of the accelerating layer.

16. The armor of Claim 1, wherein the accelerating layer is made from a ceramic material.

20       17. The armor of Claim 16, wherein the ceramic is selected from a group consisting of aluminum oxide, silicon carbide, aluminum nitride, titanium diboride, tungsten carbide, and boron carbide.

25       18. The armor of Claim 16, wherein the ceramic is a single oxide.

19. The armor of Claim 1, wherein the energy absorbing layer is a rigid material.

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20. The armor of Claim 1, wherein the energy absorbing layer is a flexible material.

21. The armor of Claim 1, wherein the energy  
5 absorbing layer is a fabric material.

22. The armor of Claim 22, wherein the energy absorbing layer is made from a ballistic fabric.

10 23. The armor of Claim 1, wherein the energy absorbing layer is an aramid material.

24. The armor of Claim 1, wherein the energy absorbing layer is a polyethylene material.

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25. The armor of Claim 1, wherein the energy absorbing layer is made from a polymeric fiber material.